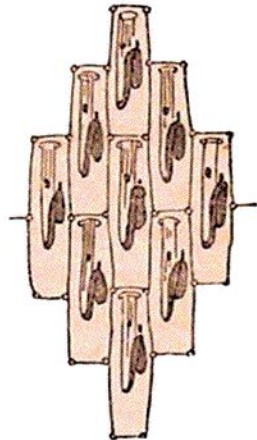


for the present, to consider all the ascidian as compound polypes.\* There is nevertheless a remarkable difference between them and the hydraform tribes in their mode of composition. In the latter the polypes are simply developments of the common central fleshy mass, identical with it in structure and texture; in the former each individual is a distinct organism, and the medium which binds them together, whether vascular or ligamentous, has its own peculiar character. The one we may compare to a chain of which all the links are welded,—the other to a necklace where the beads are strung together by a percurrent thread. To express this distinction we shall call the hydraform *compound* polypes, and the ascidian *aggregated* polypes.

The body of the ascidian polypes is lengthened, somewhat cylindrical or at times bulged at the base, and when at rest lies, in the form of a syphon, doubled up upon itself in the cell, (Fig. 2, †) to which it is connected by a tendon at the bottom, and by the duplicature of a thin membrane round the aperture, so that it is impossible it should ever voluntarily leave the cell to swim at large, as Baster and others have maintained. The head or upper end is surrounded by a single row of tentacula, (Fig. 3, a,) which are solid, filiform and non-contractile, for the animal can only shorten them, excepting to a slight extent, by rolling them up in a spiral manner: they are apparently smooth, but with a high magnifier it is ascertained that they are clothed with numerous fine cilia, ‡ which are in ceaseless motion, and are supposed

Fig. 2.



\* "The polypi are most intimately and inseparably connected with the *axis* by three parts of their body, and are only digestive sacs or mouths developed by the *axis*, as in all other zoophytes, for the nourishment of the general mass. By the *axis* of a zoophyte, I understand every part of the body excepting the polypi, whether of a calcareous, horny, or fleshy nature. The exact mathematical arrangement and forms of the cells of *Flustra* is incompatible with their existence as separate and independent beings, but is quite analogous to what we are accustomed to observe in *Cellariæ*, *Sertulariæ*, *Plumulariæ*, and many other well-known compound animals."—Grant in *Edin. New Phil. Journ.* iii. 116. See also Blainville, *Man. d'Actinologie*, p. 99.

† The figure, for which I am indebted to my friend Mr William Scott, represents the polypes of *Flustra membranacea* in a state of retraction.

‡ For a history of this discovery, written with great learning and impartiality,